

Constructed Wetlands for Failing Septic Tanks

Project Description: Failing septic systems can result in partially or untreated surface wastewater containing fecal coliform bacteria and nutrients. This causes nonpoint source (NPS) pollution in drainage ways, streams and lakes. Current technology resulting from a three-year study on nine constructed wetland systems by Dr. Kevin White, University of South Alabama, is used in the design of these constructed wetlands in South Carolina. This system consists of two shallow basins about one foot in depth containing gravel, which supports emergent vegetation. The first of the two cells is lined to prevent seepage, while the second is unlined and acts as a disposal field. The water level is maintained below the gravel surface, thus preventing odors, public exposure, and vector problems. In other designs, a standard field drain system is used in place of a second cell.



Preliminary data collected by the South Carolina Department of Health and Environmental Control (SCDHEC) between May 1999 and April 2000 on eight of these systems constructed statewide show significant reductions in nutrients and bacteria as a result of treatment. The monitoring shows an average 99% reduction in fecal coliform bacteria, 86% in total suspended solids, 77% in BOD5, 39% in total phosphorus, 59% in nitrate, and 35% in ammonia.

The East Piedmont Resource Conservation and Development Council is managing the construction of ten of these constructed wetlands systems to replace failing septic tank systems at homes in a watershed surrounding Lake Murray. This lake is a large recreational impoundment in central South Carolina where poor soil conditions and steep slopes are causing some conventional systems to fail. A comprehensive technology transfer program will complement the project to educate citizens about the benefit of the BMP. The Ninety-Six Resource Conservation and Development Council is also conducting a similar project in Greenwood County.

Lead Agency: SCDHEC, East Piedmont Resource Conservation and Development Council

Funding: EPA 319: \$69,500 **Matching:** \$46,333

Project Location: SC, Saluda Watershed

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